

DETAILED ACTION

This is a non-final Office action in response to a final Office action on 1/5/10.

Transitional After Final Practice

Since this application is eligible for the transitional procedure of 37 CFR 1.129(a), and the fee set forth in 37 CFR 1.17(r) has been timely paid, the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a). Applicant's first submission after final filed on 4/5/10 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "copolymers of these" in claims 10 and 17 line 5 is a relative term which renders the claim indefinite. It is unclear if the copolymers refer to the polyacrylate, polymethacrylate, polymers obtainable by polymerizing esters and/or amides of acrylic acid or methacrylic acid or some other form of polymer(s)?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5, 7-11, 15,17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glemet et al. US Patent 4937028 (hereinafter Glemet '028) (already of record) in view of Winckler et al. US Patent 6369157B1 (hereinafter Winckler '157) in further view of Sharma et al. US Patent 6090319 (hereinafter Sharma '319) (already of record) in further view of Bernd et al. European Patent Publication EP1283102 as taught by Imashiro et al. US Patent 6214940 (hereinafter Imashiro '940). The Examiner would like to note that EP1283102 is in the same family of patent publication as Bernd et al. PGPub Publication US2003/0096898A1 (hereinafter Bernd '898) as shown in the

abstract of the EP1283102 reference and believe that the content of both publication are the same. Thus, for purpose of examination, the Examiner will rely on the disclosure of Bernd '898 since the translation of the EP1283102 reference is not very clear.

Regarding claim 1, Glemet '028 discloses a process for production of long fiber-reinforced molding compositions (process for producing thermoplastic resins reinforced with long fibers, Column 1 Line 7-8) encompassing the steps of:

- a) passing, over a surface, at least one multifilament strand of multifilaments subject to tension, so that in the at least one strand the multifilaments spread apart and form an opened multifilament strand (having passed through at least one baffle of a bar...applies a force perpendicular to width of the rovings...causes spreading of the fibers, Column 2 Line 15-17),
- b) introducing the opened multifilament strand subject to tension (as stated in the aforementioned rejection in claim 1(a)) into a first impregnator (rovings are introduced into the die for impregnation, Column 2 Line 12-13),
- c) conducting a first thermoplastic molding composition into the first impregnator, where the first thermoplastic molding composition comprises at least one thermoplastic polymer (impregnated with wetting thermoplastic resin, Column 2 Line 18-19), optionally comprises other additives which do not adversely affect the activity of the catalyst, the formation of covalent bonds between the thermoplastic polymer and the multifilaments, the covalent bonds linking the thermoplastic polymer to the surface of the multifilaments in the first impregnator (Note, the wetting thermoplastic polymer which acts as a coupling agent makes it possible to increase the bond between the

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surface fiber and coating polymer (Column 3 Line 55-58) and therefore it is the Examiner's position that covalent bonds exist between the coating polymer and the surface of the multifilaments exist as a result of this coupling agent).

- d) impregnating the at least one opened multifilament strand with the plastified first thermoplastic molding composition (fed with molten wetting thermoplastic polymer after having passed through at least one baffle of a bar or baffle zone which...causes spreading of the fibers, Column 2 Line 11-17),
- e) drawing-off of the fiber-reinforced strand formed from the first impregnator (sheet or strip...impregnated with wetting thermoplastic resin and drawn, Column 2 Line 17-19),
- f) passing the fiber-reinforced strand into a second die (wetting resin impregnated fibers...entering the second die, Column 2 Line 19-20),
- g) conducting a second thermoplastic molding composition, other than the first thermoplastic molding composition and comprising at least one thermoplastic polymer (polypropylene, Column 5 Line 56; note: this propylene is different from the first thermoplastic molding composition which is polypropylene grafted with maleic anhydride, Column 4 Line 59-60)
- h) sheathing the fiber-reinforced strand with the plastified second thermoplastic molding composition in the second die (wetting resin impregnated fibers...entering the second die fed with coating resin, Column 2 Line 65-67),
- i) drawing-off of the fiber-reinforced strand provided with a sheath composed of the second thermoplastic molding composition from the second die (second die...from orifices of 4mm diameter of the die, were drawn reed, Column 5 Line 53-60), and

j) optionally cooling (drawn reeds...which were then cooled, Column 5 Line 60-61), molding, pelletizing and/or further processing of the fiber-reinforced strand provided with a sheath composed of the second thermoplastic molding composition.

Note, Glemet '028 discloses that the fiber impregnated with the wetting thermoplastic resin is heated above 40°C the melting temperature of the wetting resin and then fed with the thermoplastic resin (Column 2 Line 46-55) and the second thermoplastic molding composition which is polypropylene at 230°C was fed into a second die maintained at 210°C (Column 5 Line 53-57). Therefore, it is considered that the first and second thermoplastic molding compositions are plastified at these operating temperatures.

However, Glemet '028 failed to teach at least one catalyst from 0.00001% to 0.5% by weight and an antioxidant additive from 0.01% to 1.0% by weight, wherein the at least one catalyst catalyzes the formation of covalent bonds between the thermoplastic polymer and the multifilaments and additives added into the second die.

In the same field of endeavor, Winckler '157 discloses in regard to claim 1(c), at least one catalyst from a certain percentage by weight (the amount of polymerization catalyst employed is generally...more preferably about 0.2 to about 0.6 mole percent based on total moles of monomer or repeat units of the macrocyclic polyester oligomer, Column 11 Line 9-14) wherein the at least one catalyst catalyzes (pulling a fibrous strand into an elongated die, moving the macrocyclic polyester oligomer and the polymerization catalyst...into the die thereby causing contact with and around the fibrous strand, heating to cause polymerization of the macrocyclic

polyester oligomer forming high molecular weight polyester resin matrix around the fibrous strand, Column 17 Line 64-67 and Column 18 Line 2-4 the formation of covalent bonds between the thermoplastic polymer and the multifilaments *(as stated in the aforementioned rejection in claim 1).*

Winckler '157 and the claims differ in that Winckler '157 does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions of 0.2 to about 0.6 mole percent based on total moles of monomer of repeat units of the macrocyclic polyester oligomer as taught by Winckler '157 overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

"The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages", *In re Peterson* 65 USPQ2d 1379 (CAFC 2003). *Also, In re Geisler* 43 USPQ2d 1365 (Fed. Cir. 1997); *In re Woodruff*, 16 USPQ2d 1934 (CCPA 1976); *In re Malagari*, 182 USPQ 549,553 (CCPA 1974) and MPEP 2144.05.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Glemet '028 with that

of Winckler '157 by combining the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer as disclosed by Glemet '028 with the use of a catalyst as disclosed by Winckler '157 for the benefit of optimizing the process of catalyzing the polymerization of the macrocyclic polyester oligomer (Winckler '157, Column 5 Line 64-67), facilitating the wetting of the fibers (Winckler '157, Column 18 Line 59-64), and eliminating the need to cool the exit end of the pultrusion die thereby minimizing equipment size and maximizing the pull speed (Winckler '157, Column 18 Line 64-67 and Column 19 Line 1-5) which in turn minimizes production cost. In addition, the "ready-to-use" one component of the macrocyclic polyester oligomer and polyesterization catalyst disclosed by Winckler '157 avoids the need for equipment modification thereby reducing time and cost of manufacture while expanding the application of macrocyclic polyester oligomer (Winckler '157, Column 1 Line 58-64). During this process, the formation of the covalent bond as disclosed by Glemet '028 would also be catalyzed.

However, the hypothetical teaching combination of Glemet '028 and Winkler '157 failed to teach an antioxidant additive from 0.01% to 1.0% by weight and additives added into the second die.

In the same field of endeavor, Sharma '319 discloses in regard to claim 1(g), additives added into the second die (*coating die 15...second thermoplastic resin material and an additive material, Column 4 Line 46-48*).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching

combination of Glemet '028 and Winkler '157 with that of Sharma '319 by combining the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer and a catalyst as disclosed by the hypothetical teaching of Glemet '028 and Winkler '157 with the addition of an additive material in the second die as disclosed by Sharma '319 for the benefit of optimizing the molding properties as well as physical and chemical properties of shaped articles (Sharma '319, Column 5 Line 60-62).

However, the hypothetical teaching combination of Glemet '028, Winkler '157, and Sharma '319 failed to teach an antioxidant additive from 0.01% to 1.0% by weight.

In an art relating to long-fiber reinforced polyolefin structures, Bernd '898 discloses an antioxidant additive at a certain percentage by weight (amount of antioxidant..from 0.2 to 2.0% by weight, Paragraph [0113]; note: additives comprise of antioxidants ([0110]) and are added in the first die where the impregnation of the resins occur ([0118])).

Bernd '898 and the claims differ in that Bernd '898 does not teach the exact same proportions as recited in the instant claims.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions of antioxidant from 0.2 to 2.0% by weight as taught by Bernd '898 overlap the instantly claimed proportions and therefore are considered to establish a *prima facie* case of obviousness. It would have been obvious to one of ordinary skill in the art to

select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

"The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages", In re Peterson 65 USPQ2d 1379 (CAFC 2003). Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549,553 (CCPA 1974) and MPEP 2144.05.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with that of Bernd '898 by combining the process of manufacturing a long fiber-reinforced composition utilizing thermoplastic polymer, a catalyst, and an additive material as disclosed by the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with an antioxidant additive as disclosed by Bernd '898 for the benefit of providing a long fiber-reinforced polyolefin structure with very good mechanical properties, good heat resistance, low water absorption, and low warpage thereby obtaining a product that have improved dimensioning and improve precision of fit (Bernd '898, Paragraph [0017]).

Regarding claim 2, Glemet '028 discloses wherein a plurality of opened multifilament strands, are introduced into the first impregnator (prior to passing into the impregnation die, are expanded so as to spread out substantially side by side each one

of the fibers of the roving, Column 2 Line 6-9).

Regarding claim 3, Glemet '028 discloses wherein the fiber-reinforced strand provided with a sheath composed of the second thermoplastic molding composition is cooled (as stated in the aforementioned rejection in claim 1(i)), molded, chopped into pellets, and/or further processed after leaving the second die.

Note, sheathing occurred during the resin coating in the second die or coating die (Column 2 Line 65-67).

Regarding claim 4, Glemet '028 discloses wherein the first thermoplastic molding composition is substantially composed of at least one thermoplastic polymer (impregnated with wetting thermoplastic resin, Column 2 Line 18-19), and, optionally of at least one antioxidant, and wherein the proportion of the multifilaments is from 10 to 80% by weight, based on the weight of the fiber- reinforced rod leaving the first impregnator (the continuous fibers impregnated...wetting resin...70 to about 75% by weight of fibers, Column 3 Line 14-16).

Note, it is the Examiner's position that impregnation of the rovings with the wetting thermoplastic resin (Column 2 Line 12-19) causes the fiber strands to be reinforced. Also, Glemet '028 discloses that reeds of 4mm diameter were made from the first die. Therefore, the fiber leaving the first impregnator is a fiber-reinforced rod.

Regarding claim 4, Glemet '028 failed to teach wherein the first thermoplastic molding composition is substantially composed of at least one catalyst.

Regarding claim 4, Winckler '157 discloses wherein the first thermoplastic molding composition is substantially composed of at least one catalyst (pulling a fibrous strand into an elongated die, moving the macrocyclic polyester oligomer and the polymerization catalyst, Column 17 Line 64-66),

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Glemet '028 with that of Winkler '157 by combining the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer as disclosed by Glemet '028 with the catalyst as disclosed by Winkler '157 for the benefit of optimizing the process of catalyzing the polymerization of the macrocyclic polyester oligomer (Winckler '157, Column 5 Line 64-67). In addition, the "ready-to-use" one component of the macrocyclic polyester oligomer and polyesterization catalyst disclosed by Winckler '157 avoids the need for equipment modification thereby reducing time and cost of manufacture while expanding the application of macrocyclic polyester oligomer (Winckler '157, Column 1 Line 58-64).

Regarding claims 5,7, and 11, Winckler '157 discloses wherein the catalyst in the first molding composition is a catalyst which catalyzes transesterification (Polymerization catalysts include...tin compounds, Column 2 Line 12-14; note: tin compounds are transesterification catalyst, Column 5 Line 51), transamidation, or transurethanization reactions, or which catalyzes the formation of ester groups, amide groups, or urethane groups and wherein the catalyst in the first molding composition is selected from the group consisting of phosphonium salts, phosphanes, ammonium

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salts, sulfonium salts, titanates (tetra(2-ethylhexyl) titanate, tetraisopropyl titanate, tetrabutyl titanate, titanate compound...used as polymerization catalyst, Column 6 Line 45-48), titanyl compounds, zirconates, and mixtures of these and ethyltriphenylphosphonium bromide, tetraphenylphosphonium bromide, tetrabutylphosphonium bromide, stearyltributylphosphonium bromide, triphenylphosphane, n-butyl titanate (tetrabutyl titanate, Column 6 Line 46), and mixtures of these.

Regarding claim 8, Sharma '319 discloses wherein the additive in the second molding composition is selected from the group consisting of mineral fillers (calcium carbonate, silica... talc... graphite, wollastonite, Column 6 Line 13-16), colorants (pigments, Column 5 Line 66-67), antistatic agents, lubricants (lubricants, Column 6 Line 10), tribological auxiliaries, antioxidants, UV stabilizers (ultraviolet light resistant agents, Column 6 Line 11-12), acid scavengers, coupling agents, mold-release agents, nucleating agents, ultrahigh-molecular-weight polyethylene, impact modifiers, elastomers, and mixtures thereof.

Regarding claim 9, Sharma '319 discloses wherein, in the second molding composition, additives are used which are present in a separate phase in the polymer matrix (clays, Column 6 Line 14).

The clay as disclosed by Sharma '319 exists in a solid state which is a different phase from the liquid state polypropylene as disclosed by Glemet '028 as stated in the aforementioned rejection in claim 1(g).

Regarding claims 10 and 17, Glemet '028 discloses wherein the thermoplastic polymer for the first molding composition and/or the second molding composition is selected from the group consisting of polyolefin, polyacrylate, polymethacrylate, polymers obtainable by polymerizing esters and/or amides of acrylic acid or methacrylic acid (*polypropylene grafted with maleic anhydride or acrylic acid, Column 4 Line 33-34*), copolymers of these, polyamides (*polyamide, Column 4 Line 5*), polyesters, polycarbonate, polyethers, polythioethers, polyacetals, polyphenylene oxides, polyarylene sulfides, and mixtures of these and polypropylene (*polypropylene, Column 4 Line 5*), polyethylene (*polyethylene, Column 4 Line 27*), a modified polyolefin.

Regarding claim 15, Glemet '028 discloses wherein from one to a hundred of opened multifilament strands are introduced into the first impregnator (*Five rovings of glass E2400 tex. were passed into the impregnation die, Column 5 Line 46-47*).

Regarding claim 18, Glemet '028 discloses wherein the covalent bonds linking the thermoplastic polymer to the surface of the multifilaments are formed via a reaction of reactive groups of the thermoplastic polymer with reactive groups on the surface of the multifilaments or utilizing a coupling agent (*"wetting thermoplastic polymer" ...a polymer that makes it possible to increase the bond between the surface fiber and coating polymer, thus playing the part of a coupling agent, Column 3 Line 55-58; note: it is the Examiner's position that covalent bonds between the coating polymer and the surface of the multifilaments exist as a result of the wetting thermoplastic polymer which acts as a coupling agent*).

Regarding claim 19, Glemet '028 discloses the first thermoplastic molding composition (*as stated in the aforementioned rejection in claim 1*).

However, Glemet '028 failed to teach wherein the first thermoplastic molding composition comprises polyoxymethylene homo or copolymer.

Regarding claim 19, Sharma '319 discloses wherein the first thermoplastic molding composition comprises polyoxymethylene homo or copolymer (*first thermoplastic resin...polyacetals, Column 5 Line 18-20; note: polyacetal resin is commonly known as polyoxymethylene homopolymer or a copolymer as taught by Imashiro '940 (Column 2 Line 5-8)*).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching combination of Glemet '028 and Winkler '157 with that of Sharma '319 by combining the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer and a catalyst as disclosed by the hypothetical teaching of Glemet '028 and Winkler '157 with a first thermoplastic molding composition comprising of polyoxymethylene as disclosed by Sharma '319 for the benefit of providing a resin material that exhibit high flow, low viscosity, and does not exhibit degradation when heated at extreme temperature thereby allowing complete impregnation of the fibers with the resin (Sharma '319, Column 5 Line 13-22).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glemet et al. US Patent 4937028 (hereinafter Glemet '028) (already of record) in view of Winckler et al. US Patent 6369157B1 (hereinafter Winckler '157) in further view of Sharma et al. US Patent 6090319 (hereinafter Sharma '319) (already of record) in further view of Bernd et al. European Patent Publication EP1283102 and in further view of Chung et al. US Patent 4588538 (hereinafter Chung '538). The Examiner would like to note that EP1283102 is in the same family of patent publication as Bernd et al. PGPub Publication US2003/0096898A1 (hereinafter Bernd '898) as shown in the abstract of the EP1283102 reference and believe that the content of both publication are the same. Thus, for purpose of examination, the Examiner will rely on the disclosure of Bernd '898 since the translation of the EP1283102 reference is not very clear.

From the aforementioned rejection, the hypothetical combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 teaches all of the limitation of claim 1 as it applies to the dependent claim 6.

However, the hypothetical combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 failed to teach wherein the catalyst in the first molding composition is a Lewis acid.

In the same field of endeavor, Chung '538 discloses in regard to claim 6, wherein the catalyst in the first molding composition is a Lewis acid (representative catalysts...Lewis acids, Column 8 Line 15-23).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching

combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 with that of Chung '538 by combining the process of manufacturing a long fiber-reinforced composition utilizing a thermoplastic polymer, a catalyst, and an additive material as disclosed by the hypothetical teaching combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 with the Lewis acid catalysts as disclosed by Chung '538 for the benefit of optimizing the catalytic polymerization of a polymer.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glemet et al. US Patent 4937028 (hereinafter Glemet '028) (already of record) in view of Winckler et al. US Patent 6369157B1 (hereinafter Winckler '157) in further view of Sharma et al. US Patent 6090319 (hereinafter Sharma '319) (already of record) in further view of Bernd et al. European Patent Publication EP1283102 and in further view of Evans US Patent 5709933 (hereinafter Evans '933). The Examiner would like to note that EP1283102 is in the same family of patent publication as Bernd et al. PGPub Publication US2003/0096898A1 (hereinafter Bernd '898) as shown in the abstract of the EP1283102 reference and believe that the content of both publication are the same. Thus, for purpose of examination, the Examiner will rely on the disclosure of Bernd '898 since the translation of the EP1283102 reference is not very clear.

From the aforementioned rejection, the hypothetical combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 teaches all of the limitation of claim 1 as it applies to the dependent claim 16.

However, the hypothetical combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 failed to teach wherein the additive in the second molding composition is elastomer.

In the same field of endeavor, Evans '933 discloses in regard to claim 16, wherein the additive in the second molding composition is elastomer (melting EPDM rubber into polyethylene, Column 4 Line 54).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 with that of Evans '933 by combining the process of manufacturing a long fiber-reinforced composition utilizing thermoplastic polymer, a catalyst, and an additive material as disclosed by the hypothetical teaching combination of Glemet '028, Winckler '157, Sharma '319, and Bernd '898 with the EPDM rubber as disclosed by Evans '933 for the benefit of maximizing the coupling between the thermoplastic polymer and the fibers (Evans '933, Column 4 Line 54-55).

Response to Arguments

Applicant's arguments filed 4/5/10 have been fully considered.

Regarding the reference of Bernd '898, applicant argued that Bernd '898 is disqualified under 35 USC § 103 (c) (see applicant's argument page 1 line 16-22 and page 2 line 1-3). Additionally, applicant argued that Bernd '898 failed to teach a catalyst or an antioxidant present in an impregnation step.

The Examiner respectfully agrees. However, upon further search, the Examiner discovered that Bernd '898 had other patent family publications and one of which is EP1283102 published on February 12, 2003 which is prior to applicant's claimed foreign priority application DE10319237.9 with a date of April 30, 2003. Thus, this finding was applied to the instant claims as demonstrated above. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this instance, Winckler '157 was introduced to demonstrate that a catalyst was used during the impregnation of the polymer into the fibers in the die as shown above. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Glemet '028 with that of Winckler '157 by combining the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer as disclosed by Glemet '028 with the use of a catalyst as disclosed by Winckler '157 for the benefit of optimizing the process of catalyzing the polymerization of the macrocyclic polyester oligomer (Winckler '157, Column 5 Line 64-67), facilitating the wetting of the fibers (Winckler '157, Column 18 Line 59-64), and

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eliminating the need to cool the exit end of the pultrusion die thereby minimizing equipment size and maximizing the pull speed (Winckler '157, Column 18 Line 64-67 and Column 19 Line 1-5) which in turn minimizes production cost. In addition, the "ready-to-use" one component of the macrocyclic polyester oligomer and polyesterization catalyst disclosed by Winckler '157 avoids the need for equipment modification thereby reducing time and cost of manufacture while expanding the application of macrocyclic polyester oligomer (Winckler '157, Column 1 Line 58-64). During this process, the formation of the covalent bond as disclosed by Glemet '028 would also be catalyzed. Bernd on the other hand discloses an antioxidant added in the first die during an impregnation step as demonstrated in the aforementioned rejection in claim 1. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with that of Bernd '898 by combining the process of manufacturing a long fiber-reinforced composition utilizing thermoplastic polymer, a catalyst, and an additive material as disclosed by the hypothetical teaching combination of Glemet '028, Winckler '157, and Sharma '319 with an antioxidant additive as disclosed by Bernd '898 for the benefit of providing a long fiber-reinforced polyolefin structure with very good mechanical properties, good heat resistance, low water absorption, and low warpage thereby obtaining a product that have improved dimensioning and improve precision of fit (Bernd '898, Paragraph [0017]).

Regarding Winkler, applicant argued that Glemet teaches away from using the polymerization polymer of Winkler because Glemet's wetting thermoplastic polymer

include a degradation agent such as peroxide and one skilled in the art would not be motivated to add a polymerization catalyst in order to polymerize the wetting polymer which would inherently remove the functionality prior to the coating step. Additionally, applicant alleged that adding the polymerization catalyst to the impregnation step defeats the purpose of the wetting thermoplastic polymer acting as a coupling agent to couple the coating polymer to the fiber.

The Examiner respectfully disagrees. It is submitted that Winkler discloses a macrocyclic polyester oligomer comprising of PBT and PET (Column 5 Line 9-16) which have low viscosity when heated which facilitates wetting of the fibers (Column 18 Line 59-64). These polyesters are the same type of low-viscosity polyesters as disclosed by Glemet (Column 4 Line 3-16). In order to prepare the macrocyclic polyester oligomer, Winkler teaches using a transesterification catalyst and a polymerization catalyst which is capable of polymerizing the macrocyclic polyester oligomer (Column 5 Line 45-67 and Column 6 Line 1-15 and also see Column 11 Line 42-60). Thus, Winkler and Glemet saw a need to provide low-viscosity polyesters for the intended use of impregnating the fiber with the polymer (Glemet, Column 2 Line 18-19 and Winkler Column 17 Line 64-67 and Column 18 Line 2-4) as stated above. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Glemet '028 with that of Winckler '157 by combining the process of manufacturing a long fiber-reinforced composition utilizing the thermoplastic polymer as disclosed by Glemet '028 with the use of a catalyst as disclosed by Winckler '157 for the benefit of optimizing the process of catalyzing the

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polymerization of the macrocyclic polyester oligomer (Winckler '157, Column 5 Line 64-67), facilitating the wetting of the fibers (Winckler '157, Column 18 Line 59-64), and eliminating the need to cool the exit end of the pultrusion die thereby minimizing equipment size and maximizing the pull speed (Winckler '157, Column 18 Line 64-67 and Column 19 Line 1-5) which in turn minimizes production cost. In addition, the "ready-to-use" one component of the macrocyclic polyester oligomer and polyesterization catalyst disclosed by Winckler '157 avoids the need for equipment modification thereby reducing time and cost of manufacture while expanding the application of macrocyclic polyester oligomer (Winckler '157, Column 1 Line 58-64). During this process, the formation of the covalent bond as disclosed by Glemet '028 would also be catalyzed. In response to applicant's argument that Glemet teaches away from using the polymerization polymer of Winkler, it is submitted that it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983). In that respect, nowhere in Glemet's disclosure is there teaching of excluding a catalyst or a polymerization catalyst. Nor is there teaching that adding a catalyst would somehow interfere with the effectiveness or functionality of the wetting thermoplastic polymer as applicant alleged. In matter of fact, using macrocyclic polyester oligomers prepared by a catalyst as disclose by Winkler would be advantageous as demonstrated previously. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ninh V. Le whose telephone number is (571)270-3828. The examiner can normally be reached on Monday - Friday 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571)272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NVL

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